IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended)   A system for processing audio signals, comprising a sequence of digital filters, wherein each filter is configured to process a selected frequency and at least one filter is configured to process more than one frequency and the at least one filter includes coefficients for processing, and the coefficients are used to process more than one frequency.

2. (cancelled)

3. (currently amended)   The system as recited in claim [[2]]1, wherein the at least one filter is configured to process a first frequency and a second frequency that is at least one interval away from the first frequency.

4. (original)   The system as recited in claim 3, wherein the interval is an octave.

5. (original)   The system as recited in claim 4, wherein the at least one filter is configured to sample the first frequency at a first sampling rate and the second frequency at a second sampling rate.

6. (original)   The system as recited in claim 5, wherein the second frequency is lower than the first frequency and the second sampling rate is lower than the first sampling rate.

7. (original)   The system as recited in claim 6, wherein the second sampling rate is lower than the first sampling rate by two raised to the number of octaves spacing between the first frequency and the second frequency.

8. (original)   The system as recited in claim 7, wherein the sequence of digital filters is configured to process frequencies in a first octave at the first sampling rate.

9. (original)   The system as recited in claim 8, wherein the sequence of digital filters is further configured to process frequencies in a second octave at the second sampling rate.

10. (original)   The system as recited in claim 9, wherein each coefficient is represented by fewer than 13 bits.

11. (original)   The system as recited in claim 10,wherein each coefficient is represented by 12 bits.

12. (currently amended)   A system for processing audio signals, comprising a sequence of digital filters each configured to process a selected frequency, wherein each filter includes coefficients for processing and a first filter configured to process a first frequency shares its coefficients with a second filter configured to process a second frequency, the second frequency is spaced apart from the first frequency by at least one frequency interval.

13. (cancelled)

14. (currently amended)   The system as recited in claim 1[[3]]2, wherein the second frequency is spaced apart from the first frequency by at least one octave.

15. (original)   The system as recited in claim 14, wherein the first filter is configured to sample the first frequency at a first sampling frequency and the second filter is configured to sample a second frequency at a second sampling frequency.

16. (original)   The system as recited in claim 15, wherein the second frequency is lower than the first frequency, and the second sampling frequency is lower than the first sampling frequency by a ratio of the first frequency to the second frequency.

17. (original)   The system as recited in claim 14, wherein the filters are evenly grouped into at least a first and a second octave, the first filter being in the first octave and the second filter being in the second octave.

18. (original)   The system as recited in claim 17, wherein the filters in the first octave are sampled at a first sampling frequency that is at least twice as high as a highest frequency processed by the first octave.

19. (original)   The system as recited in claim 18, wherein the second octave is one octave lower than the first octave, and the filters in the second octave are sampled at a second sampling rate that is half as high as the first sampling frequency.

20. (original)   The system as recited in claim 19, wherein each filter in the first octave shares its coefficients with each filter in a corresponding position in the second octave.

21. (canceled)

22.   (original) A computer program product for processing an audio signal, comprising a computer usable medium having machine readable code embodied therein for performing the steps of:

(a)   providing a sequence of digital filters each configured to process a selected frequency;

(b)   providing each filter with coefficients for processing its selected frequency such that a first filter configured to process a first frequency shares its coefficients with a second filter configured to process a second frequency; and

(c)   applying the audio signal to the sequence of digital filters.